UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,538	10/31/2006	David Levi	38269	2307

67801 7590 02/13/2009

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER	
CLAWSON, STEPHEN J	

ART UNIT	PAPER NUMBER
4172	

MAIL DATE	DELIVERY MODE
02/13/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,538	LEVI, DAVID	
	Examiner	Art Unit	
	STEPHEN CLAWSON	4172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-14,21-26 and 35-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-14,21-26 and 35-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/9/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 11 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 11 depends upon claim 10 which Applicant has cancelled. Since claim 1 is the nearest independent claim, claim 11 will be examined as though it is dependant upon claim 1.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 11 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 11 recites the limitation that is stated in claim 10 which Applicant has cancelled. Therefore, there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 5, 7-9, 11-14, 21-26, 35-58 are rejected under 35 U.S.C. 102(b) as being anticipated by Chaar (U.S. Patent No. 6,501,766).

Regarding claim 1, Chaar teaches a destination card of a rack system, comprising:

A physical link interface adapted to connect to a backplane link of the rack system; **(See Chaar col. 2 lines 3-17; Chaar teaches a destination card system utilizing a plurality of different physical interfaces connected via a backplane bus.)**

A data interface adapted to transmit data signals through the link interface onto downlink lines of the backplane link; and **(See Chaar col. 2 lines 17-34; Chaar teaches a data interface for communicating through a backplane bus to different downlink lines.)**

A controller adapted to periodically determine a bandwidth allocation signals of time slots of uplink lines of the backplane link to data signals of a plurality of different formats, and adapted to transmit bandwidth allocation signals indicating the determined allocation through the link interface on same backplane link lines on which the data interface transmits data signals. **(See Chaar col. 2 lines 17-34; Chaar teaches a controller that uses a bus management algorithm for specifying a receive assignment definition and a transmit assignment definition, said receive assignment definition defining a receive channel for each of the modules representing a set of the time slots, wherein said modules receive signals from**

the bus during the set of time slots prescribed for each channel.)

Regarding claim 2, Chaar discloses a card according to claim 1, wherein the controller receives need indications from other cards of the rack system through the link interface and generates the bandwidth allocation signals responsive to the received need indications. **(See Chaar col. 4 lines 62-67; Chaar discloses a channel as a set of time slots assigned to the modules. The size of the channels is determined based on the needs of the modules.)**

Regarding claim 5, Chaar teaches a card according to claim 1, wherein at least two of the allocated time slots have different sizes. **(See Chaar col. 4, lines 47-61, fig. 5; Chaar teaches via fig. 5 time slot allocation that are unequal.)**

Regarding claim 7, Chaar discloses a card according to claim 49, wherein the backplane bus comprises a) standard TDM Telecom bus. **(See Chaar col. 1, lines 10-15)**

Regarding claim 8, Chaar teaches a card according to claim 1, wherein the allocation signals comprise packets that relate to a plurality of slots. **(See Chaar col. 6, lines 15-27; Chaar teaches the allocated signals relate to a network packet topology of a plurality of slots.)**

Regarding claim 9, Chaar discloses a card according to claim 1, wherein the link interface includes an Ethernet physical layer interface. **(See Chaar col. 1, lines 10-32; Chaar discloses different modules that communicate with each other. Examiner**

interprets these different modules to include Ethernet and other physical layer interfaces commonly utilized within the art of communications systems.)

Regarding claim 11, Chaar teaches a card according to claim 1, wherein the data interface is adapted to receive signals in accordance with a plurality of different formats. **(See Chaar col. 2, lines 3-10; Chaar teaches a data interface wherein modules communicate to one another using different protocols.)**

Regarding claim 12, Chaar discloses a card according to claim 11, comprising a data distributor adapted to forward the received signals according to their format. **(Chaar col. 2 lines 19-33; Chaar discloses a bus management algorithm that defines receive and transmit definitions.)**

Regarding claim 13, Chaar teaches a card according to claim 12, wherein the data distributor identifies the format of received signals by examining a header of an encapsulation packet of the signals **(See Chaar col. 4, lines 5-10; Chaar teaches header recognition.)**

Regarding claim 14, Chaar discloses a card according to claim 12, wherein the data distributor identifies the format of received signals according to the slot in which they were received. **(See Chaar col. 4, lines 10-30; Chaar describes a input frame control map and an output frame control map which includes for each time slot instructions that represent an action type. Derived from this information is the ability to identify the format based on the assigned time slot.)**

Regarding claim 21, Chaar teaches a card according to claim 1, wherein the data interface is adapted to receive signals in accordance with a plurality of different formats.

(See Chaar col. 1, lines 1-10; Chaar discloses a data interface that is adapted to receive signals from a variety of differing protocols through a shared communications bus.)

Regarding claim 22, Chaar discloses a card according to claim 21, wherein the signals of the plurality of different formats are encapsulated in packets of a single format. **(See Chaar col. 1, lines 11 -15; Chaar discloses a scheme by which a plurality of signals of different formats are packetized in order to communicate along a common bus.)**

Regarding claim 23, Chaar teaches a card according to claim 1, comprising:

a network bus interface for transmitting data signals received by the data interface onto a network bus, and wherein the controller is adapted to generate control signals regulating the use of the backplane link, for transmission to other cards connected to the backplane link, the control signals being timed responsive to the bandwidth of the network bus, such that the signals received by the data interface can be forwarded onto the network immediately upon receipt without queuing. **(See Chaar col. 1, lines 21-32; Chaar teaches a control signal and status paths for controlling the bus efficiently. Because these path are separate from the data paths; no queuing is required. The control and timing is sent to all other cards for synchronization.)**

Regarding claim 24, Chaar discloses a network card according to claim 23, wherein the destination card does not include a buffer for more than currently handled signals received by the data interface. **(See Chaar col. 1, lines 10-20; Chaar**

discloses a bus utilizing time division multiplexing which gives the cards a time slot for sending data across the bus. Because only one card sends at a time and only one card receives, buffering at the destination card is unnecessary.)

Regarding claim 25, Chaar teaches a network card according to claim 23, wherein the backplane link comprises a bus. **(See Chaar col. 1, lines 1-10)**

Regarding claim 26, Chaar discloses a network card according to claim 23, wherein the backplane link comprises a star configuration link. **(See Chaar col. 1, lines 1-10 & fig. 2; Figure 2 shows a backplane bus link in a star configuration.)**

Regarding claim 35, Chaar teaches a method of transmitting signals on a backplane bus, comprising:

receiving signals in a plurality of formats, by a first card connected to the backplane bus; **(See Chaar col. 1, lines 1-8, fig. 2; Chaar teaches a method of receiving signals in a plurality of formats)**

encapsulating at least some of the signals into a format allowing large packets of a size above 500 bytes, by the first card; **(See Chaar col. 1, lines 10-63; Chaar teaches the packetization of data across a multipurpose bus. The use of packets sized above 500 bytes is a design choice that is included in the packetization scheme.)**

transmitting the encapsulated signals to a second card connected to the backplane bus; and **(See Chaar col. 1, lines 1-10; Chaar teaches a multipurpose communication system that includes sending and receiving signals by different cards in a backplane bus.)**

removing the encapsulation from at least some of the encapsulated signals, by the second card. **(See Chaar col. 1, lines 10-63; Chaar teaches the packetization of data across a multipurpose bus. Packetization includes encapsulating by the sender and removing the encapsulation by the receiver.)**

Regarding claim 36, Chaar discloses a method according to claim 35, wherein the plurality of formats include at least one of the TDM format, the ATM format and the token ring format. **(See Chaar col. 1, lines 10-21; Chaar discloses the use of a TDM and a packetized scheme (ATM) where each is associated with a different bus type (token ring).)**

Regarding claim 37, Chaar teaches a method according to claim 35, wherein the encapsulating includes adding a header. **(See Chaar col. 1, lines 10-63; Chaar teaches the packetization of data across a multipurpose bus. Packetization includes adding a header.)**

Regarding claim 38, Chaar discloses a method according to claim 35, wherein the encapsulating includes encapsulating into the Ethernet format. **(See Chaar col. 1, lines 1-20; Chaar teaches the packetization of data across a multipurpose bus. A multitude of different protocols are utilized in the packetization including Ethernet.)**

Regarding claim 39, Chaar teaches a method according to claim 35, wherein the first card comprises a line card and the second card comprises a network card. **(See Chaar col. 1, lines 1-10; Chaar teaches a multipurpose communication system that includes sending and receiving signals by different cards in a backplane bus.**

These card would include line cards as well as various network cards that communicate via the same or different protocols.)

Regarding claim 40, Chaar discloses a method according to claim 35, comprising forwarding the signals from which the encapsulation was removed, onto a network link. **(See Chaar col. 1, lines 10-63; Chaar teaches the packetization of data across a multipurpose bus. Packetization includes encapsulating by the sender and removing the encapsulation by the receiver.)**

Regarding claim 41, Chaar teaches a method according to claim 35, comprising adding an encapsulation to the signals forwarded onto the network link. **(See Chaar col. 1, lines 10-63; Chaar teaches the packetization of data across a multipurpose bus. Packetization includes encapsulating by the sender and removing the encapsulation by the receiver. Further, the receiver may repacketize for transmission across that link.)**

Regarding claim 42, Chaar discloses a method of upgrading a rack system, comprising:

providing a rack system including at least one network card and at least one line card, which operate in accordance to a single signal format;

replacing the network card with a network card that supports operation in accordance with a plurality of formats; and

adding one or more line cards which operate in accordance with a method allowing transmission in accordance with a plurality of formats, while leaving in the rack system one or more of the at least one single format line card. **(See Chaar col. 1, lines**

1-10; Chaar teaches a multipurpose communication system that includes sending and receiving signals by different cards in a backplane bus. These card would include line cards as well as various network cards that communicate via the same or different protocols.)

Regarding claim 43, Chaar teaches a method according to claim 42, wherein the single signal format comprises the TDM format. . **(See Chaar col. 1, lines 10-21; Chaar discloses the use of a TDM.)**

Regarding claim 44, Chaar discloses a method according to claim 42, wherein the single signal format comprises the Ethernet format. **(See Chaar col. 1, lines 10-32; Chaar discloses different modules that communicate with each other. Examiner interprets these different modules to include Ethernet and other physical layer interfaces commonly utilized within the art of communications systems.)**

Regarding claim 45, Chaar teaches a method of transmitting signals comprising:

Transmitting data signals from a destination card to a source card over a downlink communication link;

Transmitting allocation signals indicating allocation of time slots of the communication link, on same link lines used for transmitting the data signals from the destination card to the source card; and

Transmitting data signals from the source card to the destination card in time slots allocated to the source card in the allocation signals. **(See Chaar col. 1 lines 1-33, col. 2 lines 17-34; Chaar teaches a data interface for communicating through a backplane bus to different downlink lines.)**

Regarding claim 46, Chaar discloses a method according to claim 45, wherein the communication link comprises a backplane bus. **(See Chaar col. 1, lines 1-8; Chaar discloses a multipurpose bus system where a plurality of modules can communicate using different protocols.)**

Regarding claim 47, Chaar teaches a method according to claim 45, wherein the source card and the destination card are not included in a same rack. **(See Chaar col. 1 lines 1-20; Chaar discloses external devices together with the internal modules intercommunicate over a bus system.)**

Regarding claim 48, Chaar discloses a method according to claim 45, wherein transmitting the data signals comprises transmitting signals of a plurality of different formats. **(See Chaar col. 1, lines 1-8; Chaar discloses a multipurpose bus system where a plurality of modules can communicate using different protocols.)**

Regarding claim 49, Chaar teaches a card according to claim 1, wherein the backplane link comprises a backplane bus. **(See Chaar col. 1, lines 1-8; Chaar discloses a multipurpose bus system where a plurality of modules can communicate using different protocols.)**

Regarding claim 50, Chaar discloses a card according to claim 1, wherein the backplane link comprises a star configuration link. **(See Chaar col. 1, lines 1-10 & fig. 2; Figure 2 shows a backplane bus link in a star configuration.)**

Regarding claim 51, Chaar teaches a card according to claim 1, wherein the controller is adapted to allocate slots of a plurality of different sizes. **(See Chaar col. 1,**

lines 1-8; Chaar discloses a multipurpose bus system where a plurality of modules can communicate using different protocols.)

Regarding claim 52, Chaar discloses a card according to claim 51, wherein the controller is adapted to select the sizes of the allocated slots responsive to the types of signals the slots are to carry. **(See Chaar col. 1, line 65 – col. 2, line 17)**

Regarding claim 53, Chaar teaches a card according to claim 1, wherein the bandwidth allocation signals identify the types of signals to be transmitted in at least some of the slots. **(See Chaar col. 1, line 65 – col. 2, line 17)**

Regarding claim 54, Chaar discloses a card according to claim 1, wherein the bandwidth allocation signals identify, for at least some slots, a specific queue to receive the slot. **(See Chaar col. 2, lines 18-34; Chaar discloses the allocation of bandwidth via time slots. These slots are queued via a bus management algorithm.)**

Regarding claim 55, Chaar teaches a card according to claim 1, wherein the bandwidth allocation signals indicate a general rule with instructions on how the slots allocated to a source card are to be divided between clients of the source card. **(See Chaar col. 2, lines 18-34; Chaar discloses the allocation of bandwidth via time slots. These slots are queued via a bus management algorithm.)**

Regarding claim 56, Chaar discloses a card according to claim 55, wherein the bandwidth allocation signals indicate when signals of a client are to be discarded. **(See Chaar col. 2, lines 18-34; Chaar discloses the allocation of bandwidth via time**

slots. Clients may only transmit during these allotted time slots. If they transmit outside of these time slots, the signal is discarded.)

Regarding claim 57, Chaar teaches a card according to claim 55, wherein each client of the source card has an agreed green bandwidth provided at all times and an allocated yellow bandwidth provided when available, and wherein the bandwidth allocation signals indicate a percentage of the agreed yellow bandwidth to be allocated to the clients. **(See Chaar col. 1, lines 33-46; Chaar discloses a bus manager used to control the bus in a time-sharing manner. A certain percentage is allocated to the time division bus, packet bus, serial bus, and to an address/data bus.)**

Regarding claim 58, Chaar discloses a rack system, comprising:

A chassis including a backplane link;

A destination card according to claim 1; and

A plurality of source cards, adapted to transmit to the destination card over the backbone link, data signals in accordance with a plurality of different formats. **(See Chaar col. 1, lines 1-10; Chaar discloses a communication system comprised of a variety of modules that communicate using different protocols via a shared communications bus.)**

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chaar (U.S. Patent No. 6,501,766), and further in view of Hou (U.S. Patent No. 6,324,184).

Regarding claim 3, Chaar teaches a destination card system utilizing a plurality of different physical interfaces connected via a backplane bus. Chaar does not teach a card according to claim 1, wherein the controller performs the allocation repeatedly in predetermined intervals. However, Hou does. **(See Hou col. 1, lines 10-22).** Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine a backplane bus with dynamic bandwidth allocation. One would combine the two to increase the bandwidth utilization of the bus and, therefore, increasing the efficiency of the bus.

Regarding claim 4, the combination of Chaar and Hou discloses a controller that performs repeated bandwidth allocation in successive intervals **(See Hou col. 2, lines 7-12).**

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN CLAWSON whose telephone number is (571)270-7498. The examiner can normally be reached on M-F 7:30-5:00 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis West can be reached on 571-272-7859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/STEPHEN CLAWSON/
Examiner, Art Unit 4172

/Lewis G. West/
Supervisory Patent Examiner, Art Unit 4172